Art. XVII.—*Notes on a Phyllocarid and a Brachiopod found in the Lancefield Zone of the Lower Ordovician Rocks of Victoria*

By KATHLEEN SHERRARD, M.Sc.

(With Plate XI.)

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The fossils here described were obtained in a quarry half a mile to the north of the now deserted Mt. William railway station on the disused Lancefield to Kilmore railway, in allotment 56, Parish of Goldie, Victoria.

The quarry was visited on an excursion during the visit of the Pan-Pacific Science Congress to Australia in 1923. In the fine-grained dark blue slates of this quarry are found typical specimens of the fauna of the Lancefield Zone of the Lower Ordovician as defined by the late Dr. T. S. Hall (1).

The first specimen, preserved as an impression, and its counterpart, is a thin black valve with shining white ornament revealed on a split slab of fine-grained slate; it is regarded as a phyllocarid.

On the same slab are seen impressions of *Bryograptus victoriae* T. S. Hall, *Didymograptus pritchardi* T. S. Hall, *Clonograptus rigidus* Linarsson, and *Tetragraptus decipiens* T. S. Hall.

The phyllocarid specimen is entangled in a mass of graptolite remains suggesting *Didymograptus pritchardi*.

In addition to the graptolites recorded from this quarry, Hall mentions (1, p. 164) a phyllocarid form which "appears to be a *Lingulocaris* allied to if not identical with *L. maccoyi* Eth. jr."

On account of differences in the phyllocarids of the Lower Ordovician of Victoria from *Lingulocaris* Salter, Chapman (2, p. 114) has introduced a new genus, *Rhinopterocaris*, at the same time retaining the species name "*maccoyi*," which R. Etheridge junr. (3) proposed in 1892.

In this present phyllocarid specimen, unlike others previously recorded from the locality, the valves are partly open for the extrusion of abdominal appendages and additional information as to the structure of the phyllocarid can be obtained. A suggested reconstruction is shown in a sketch (Pl. XI., Fig. 2).

The ornamentation is very noticeable. It may be compared with *Lingulocaris* figured by Etheridge (3, pl. iv., fig. 1).

The protruding appendages are considered to be rostrum, cephalic appendages, uropods and two cercopods, and possibly a stalked eye immediately beneath the rostrum.

From the shape of the carapace, truncate behind and slightly more pointed in front, and from the umbo-like prominence on the dorsal margin, the specimen is seen to be allied to *Hymeno-*

caris or *Ceratiocaris* (4, 5). *Ceratiocaris*, however, is solely a Silurian genus, and furthermore the specimen is clearly more allied to *Hymenocaris* Salter. *Hymenocaris* is a common Upper Cambrian genus in Wales (5), and also frequent in the Middle Cambrian of North America (6). The carapace in this genus is univalved, but folded along the dorsal line into two equal flaps. The remarkable ornament on the carapace of the Victorian species has not hitherto been recorded, and it has suggested the specific name, *ornata*.

Order PHYLLOCARIDA Packard.

Sub-order HYMENOCARINA Clarke.

Family HYMENOCARIDAE Salter.

Genus **Hymenocaris** Salter, 1853.

HYMENOCARIS ORNATA, sp. nov.

(Plate XI., Figs. 1-3.)

Description.—Carapace thin, almost membranous, preserved as impression and counterpart. Its shape is semi-oval, more pointed at anterior margin than posterior; both ends are truncate, the valve is narrower at the anterior end than the posterior, and it shows an umbo. The ventral margin is gently convex. The greatest length is 22 mm. (20 mm. without appendages). The entire width is 11 mm. (9 mm. without appendages).

The ornament consists of very delicate, fine white lines, with saw-tooth-like shining scales, packed very closely, crossing specimen from dorsal to ventral margin, with a strong tilt towards the posterior just before reaching the ventral margin.

The scales on the lines are each about ½ mm. in length, and in shape like the thecae of a graptolite, with a long gradual concave curve towards the dorsal margin, meeting a short sharp concave curve towards the ventral margin at almost a right angle, which points to the posterior (Pl. XI., Fig. 3). The lines of scales are each about ½ mm. apart. Many of the white scales are overlain by a thin shining skin.

The same saw-tooth-like markings are seen on body segments, but not on the carapace, in some species of *Ceratiocaris* figured by Jones and Woodward (5, pls. vi., xi.). They are described as "lattice ornament."

Protruding Appendages.—(*a*) Rostrum.—Horizontal, protruding from anterior near dorsal margin. 3 mm. long.

(*b*) Stalked eye (?).—This feature is recorded for *Hymenocaris perfecta* by Walcott (6, pp. 159 and 183), but not illustrated. It is a broad leaf-shaped appendage, 4 mm. long and 1·5 mm.

broad, projecting diagonally upwards from the anterior near the ventral margin.

(*c*) Three jointed cephalic appendages.—One of them (3·5 mm. in length) projects from the anterior margin immediately below the stalked eye (?), and is possibly the antennule. Two are longer (up to 12 mm.), and folded back parallel to the ventral edge, and are possibly antennae.

(*d*) Cercopods.—Projecting from the posterior margin are two flattened leaf-like appendages which suggest cercopods attached to abdominal segments hidden beneath the carapace. They have the shape characteristic of cercopods seen in illustrations of *Hymenocaris perfecta* (6). They are subtriangular with the base attached beneath the valve and one cercopod has a pair of outer spines or setae. The cercopods are 3 mm. in length and 4 mm. in width.

(*e*) Uropods.—On the ventral margin near the posterior are two flattened appendages 2 mms. long and about 1 mm. broad, which may be the abdominal appendages (uropods).

Holotype (Reg. No. 993) and counterpart (Reg. No. 994) in the collection of the Department of Geology, University of Melbourne.

The second specimen to be described from the same quarry shows an impression of a valve, evidently a brachiopod, and also numerous specimens of *Bryograptus victoriae* T. S. Hall.

Only one brachiopod impression was found, but since hitherto none has been recorded from the Lancefield zone of the Lower Ordovician, this find is interesting, as it adds to the type fauna.

The fossil is an impression of the dorsal valve, It is evidently somewhat compressed and distorted owing to its preservation in highly folded slates, since a small portion of the ventral valve has been revealed beneath the dorsal valve by the pushing over of the latter, while from the same cause the hinge line is longer on the right side of the umbo than on the left.

Mr. Frederick Chapman has examined the valve and compares it with *Siphonotreta* de Verneuil.

Class BRACHIOPODA.

Family SIPHONOTRETIDAE Kutorga.

Genus cf. **Siphonotreta** de Verneuil, 1845.

? SIPHONOTRETA LANCEFIELDENSIS, sp. nov.

(Plate XI., Fig. 4.)

Description.—The fossil is a thin, white external impression of the dorsal valve with portion of the other valve protruding from

beneath. It is semi-oval in outline, with an almost straight hinge-line, whose length is nearly equal to the entire breadth of the shell. The umbo is small and obtuse. The valve measures 9 mm. in breadth and about 6 mm in length. The thin, white oval impression is ornamented with a large number of fine, white equidistant concentric growth lines packed closely. In addition, radiating ridges branch out from the small umbo. These radiating ribs are most marked near the anterior margin. A question arises, are some of the larger of them cracks caused in the fossil shell by the pressure of overlying beds? The valve is freely ornamented with small circular pits which suggest the former presence of spines. They are more numerous near the margin of the shell than near the hinge, but their disposition is irregular.

Holotype in the collection of the Department of Geology, University of Melbourne (Reg. No. 995).

In many ways (?) *Siphonotreta lancefieldensis*, sp. nov., may be compared with (?) *Siphonotreta minnesotensis* from the Trenton limestone of Minneapolis, Minnesota, described and figured by Hall and Clarke (7, p. 177, pl. iv., figs. 37, 38).

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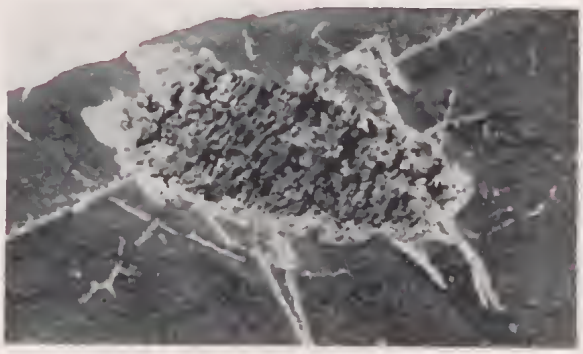

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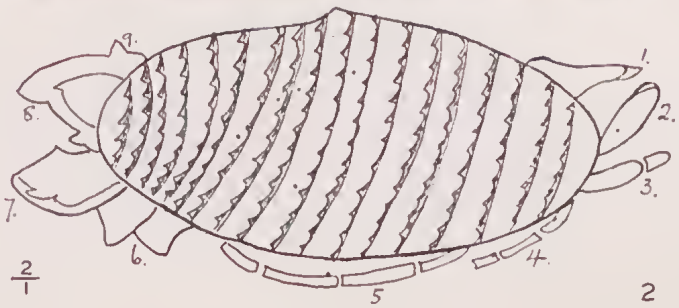

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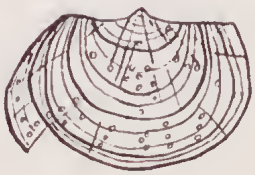

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